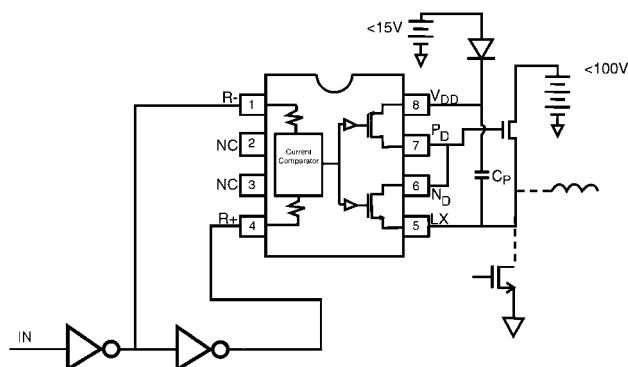


## 100V High Side Driver

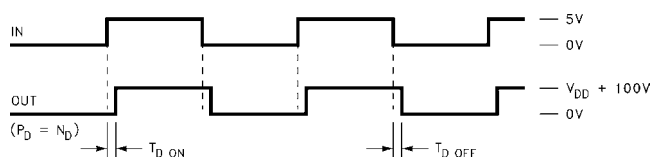
**élantec**

The EL7501 provides a low cost solution to many high side drive applications. The EL7501 is DC coupled so there are no start up problems associated with AC coupled schemes. The EL7501 is driven by user supplied complementary signals.

### Pinout



7501 Waveform Example



### Features

- 100V High Side Voltage
- Rail to Rail Output
- 1MHz Operation
- 1.0A Peak Current
- Matched Rise and Fall Times
- Direct Coupled
- No Start Up Ambiguity

### Applications

- Uninterruptible Power Supplies
- DC-DC Converters
- Motor Control
- Power MOSFET Driver

### Ordering Information

| PART NUMBER | TEMP. RANGE    | PACKAGE    | PKG. NO. |
|-------------|----------------|------------|----------|
| EL7501CN    | -40°C to +85°C | 8-Pin PDIP | MDP0031  |
| EL7501CS    | -40°C to +85°C | 8-Pin SO   | MDP0027  |

**Absolute Maximum Ratings** ( $T_A = 25^\circ\text{C}$ )

Supply ( $V_{DD}$  or LX to R- or R+) .....100V  
 Supply ( $V_{DD}$  to LX) ..... 16.5V  
 Output Pins ..... -0.3V below GND,  
 .....+0.3V above  $V_{DD}$   
 Peak Output Current .....2A

Ambient Operating Temperature .....-40°C to +85°C  
 Storage Temperature Range .....-65°C to +150°C  
 Operating Junction Temperature .....125°C  
 Power Dissipation SOIC .....570mW  
 PDIP.....1050mW

**CAUTION:** Stresses above those listed in "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress only rating and operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied.

**IMPORTANT NOTE:** All parameters having Min/Max specifications are guaranteed. Typical values are for information purposes only. Unless otherwise noted, all tests are at the specified temperature and are pulsed tests, therefore:  $T_J = T_C = T_A$

**DC Electrical Specifications**  $T_A = 25^\circ\text{C}$ ,  $V_{DD} = 15\text{V}$ ,  $C_{LOAD} = 1000\text{pF}$ , unless otherwise specified.

| PARAMETER    |                  | DESCRIPTION                                        | TEST CONDITIONS           | MIN.  | TYP. | MAX.  | UNITS         |
|--------------|------------------|----------------------------------------------------|---------------------------|-------|------|-------|---------------|
| Input/Output | $V_{DIFF}$ (Min) | Minimum Differential Input Signal to Switch Output |                           | 1.0   |      |       | V             |
|              | $I_{DS\ OFF}$    | Output Leakage                                     | $GND < V_{OUT} < V_{DD}$  | -10.0 | 0.2  | +10.0 | $\mu\text{A}$ |
|              | $R_{OH}$         | Pull-up Resistance                                 | $I_{OUT} = -100\text{mA}$ |       | 5.0  | 10.0  | $\Omega$      |
|              | $R_{OL}$         | Pull-down Resistance                               | $I_{OUT} = +100\text{mA}$ |       | 5.0  | 10.0  | $\Omega$      |
|              | $I_{PK}$         | Peak Output Current                                |                           |       | 1.0  |       | A             |
|              | $I_{DC}$         | Continuous Output Current Source/Sink              |                           | 50.0  |      |       | mA            |
| Power Supply | $I_{DD}$         | Supply Current into $V_{DD}$                       |                           |       |      | 4.0   | mA            |
|              | $V_{DD}$         | Operating Voltage                                  |                           | 4.5   |      | 15.0  | V             |

**AC Electrical Specifications**  $T_A = 25^\circ\text{C}$ ,  $V_{DD} = 15\text{V}$ ,  $C_{LOAD} = 1000\text{pF}$ , unless otherwise specified.

| PARAMETER                 |              | DESCRIPTION         | TEST CONDITIONS                               | MIN. | TYP.         | MAX.  | UNITS |
|---------------------------|--------------|---------------------|-----------------------------------------------|------|--------------|-------|-------|
| Switching Characteristics | $t_R$        | Rise Time           | $C_L = 500\text{pF}$<br>$C_L = 1000\text{pF}$ |      | 15.0<br>20.0 | 40.0  | ns    |
|                           | $t_F$        | Fall Time           | $C_L = 500\text{pF}$<br>$C_L = 1000\text{pF}$ |      | 15.0<br>20.0 | 40.0  | ns    |
|                           | $t_{D\ OFF}$ | Turn Off Delay Time |                                               |      | 90.0         | 140.0 | ns    |
|                           | $t_{D\ ON}$  | Turn On Delay Time  |                                               |      | 90.0         | 140.0 | ns    |

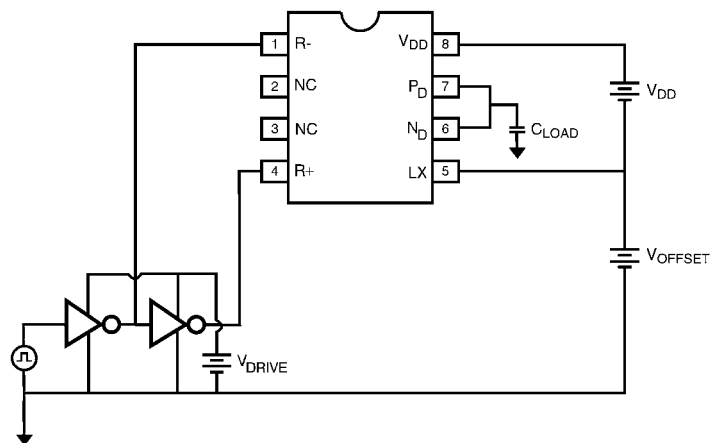


FIGURE 1. EL7501 TEST CIRCUIT

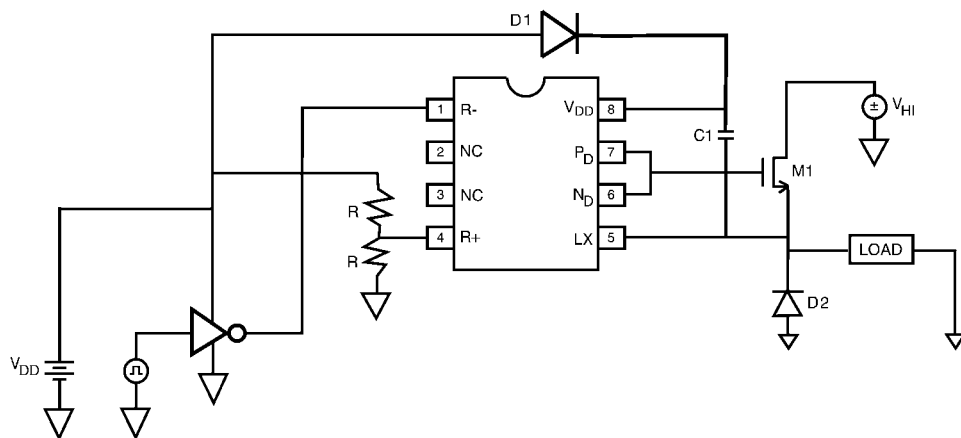
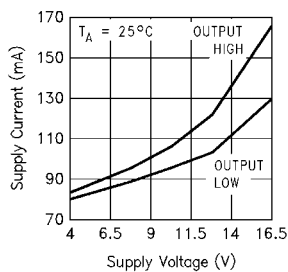


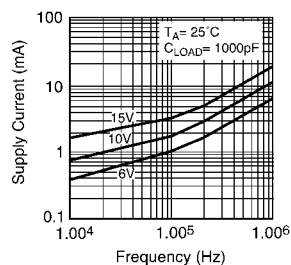
FIGURE 2. EL7501 ALTERNATE DRIVE METHOD

## Typical Performance Curves

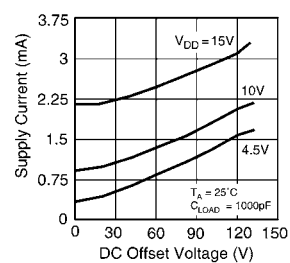
**Quiescent Supply Current vs Supply Voltage**



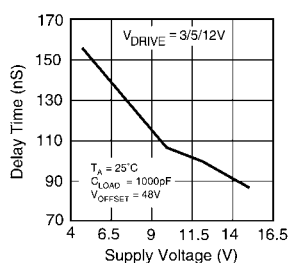
**Average Supply Current vs Voltage and Frequency**



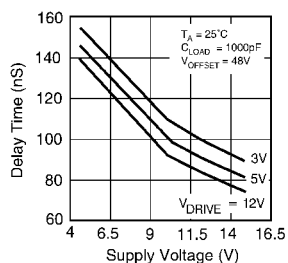
**Supply Current vs DC Offset Voltage and  $V_{DD}$**



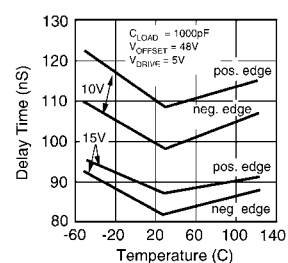
**Output Rising Edge Delay Time vs Supply Voltage and Drive Voltage**



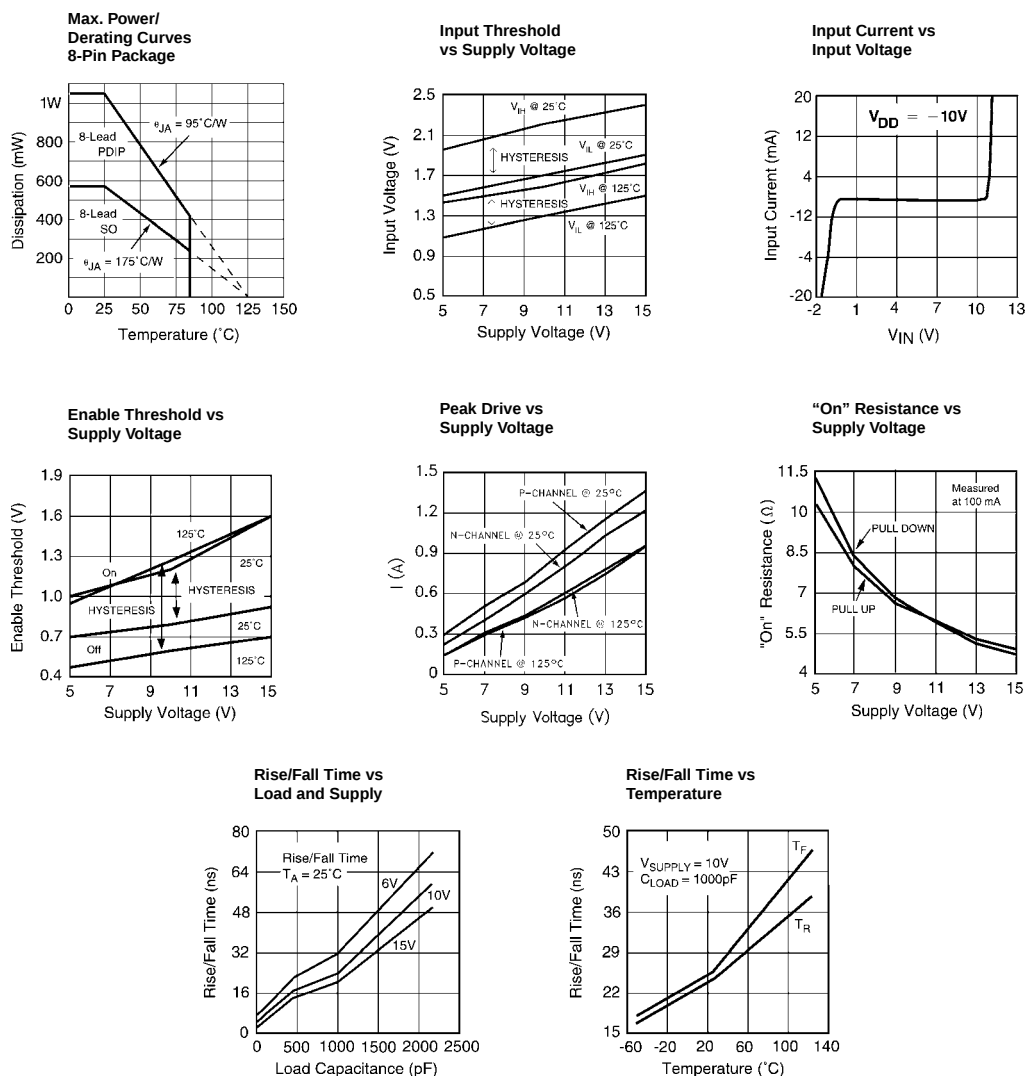
**Output Falling Edge Delay Time vs Supply Voltage and Drive Voltage**



**Delay Time vs Temperature and Supply Voltage**



# Typical Performance Curves (Continued)



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